

**Intelligent Stick™ Pro220**  
**Pro 220 Series**

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## Revision History

Revision	Date	History	Remark
A.0	09/08 '06	New Creation	
A.1	01/03 '07	Add Support Windows Vista And Update Capacity	

- Important!! Please make sure the driver matches the part number on your pen drive before you download.
- Software AP System Requirements. One of following operation systems: Windows 98/98SE/Windows ME/Windows 2000/Windows XP/Windows Vista.
- The advertised memory capacity of this device represents unformatted capacity. Please note that once formatted and due to variations in flash module block limitations, the functional storage space will be lower than the advertised capacity.
- "PQI reserves the right to make changes without notification when fit, form, function, quality and reliability are not affected. The data sheets do not constitute contract documents and should not be considered part of the specification for purposes of any warranty."

# Intelligent Stick™

## 1. Introduction to Intelligent Stick™ Pro 220

The **Intelligent Stick Pro 220** is a PQL patented technology. It combines characteristics of a flash card and a USB flash drive. It does not need a card reader to read from or write to thus making it the perfect storage medium for all types of digital devices. PQL's Intelligent Stick consumes minimum power and its minute dimensions makes it easy to store. For added value, it also comes with password security, partitioning software and USB boot applications.

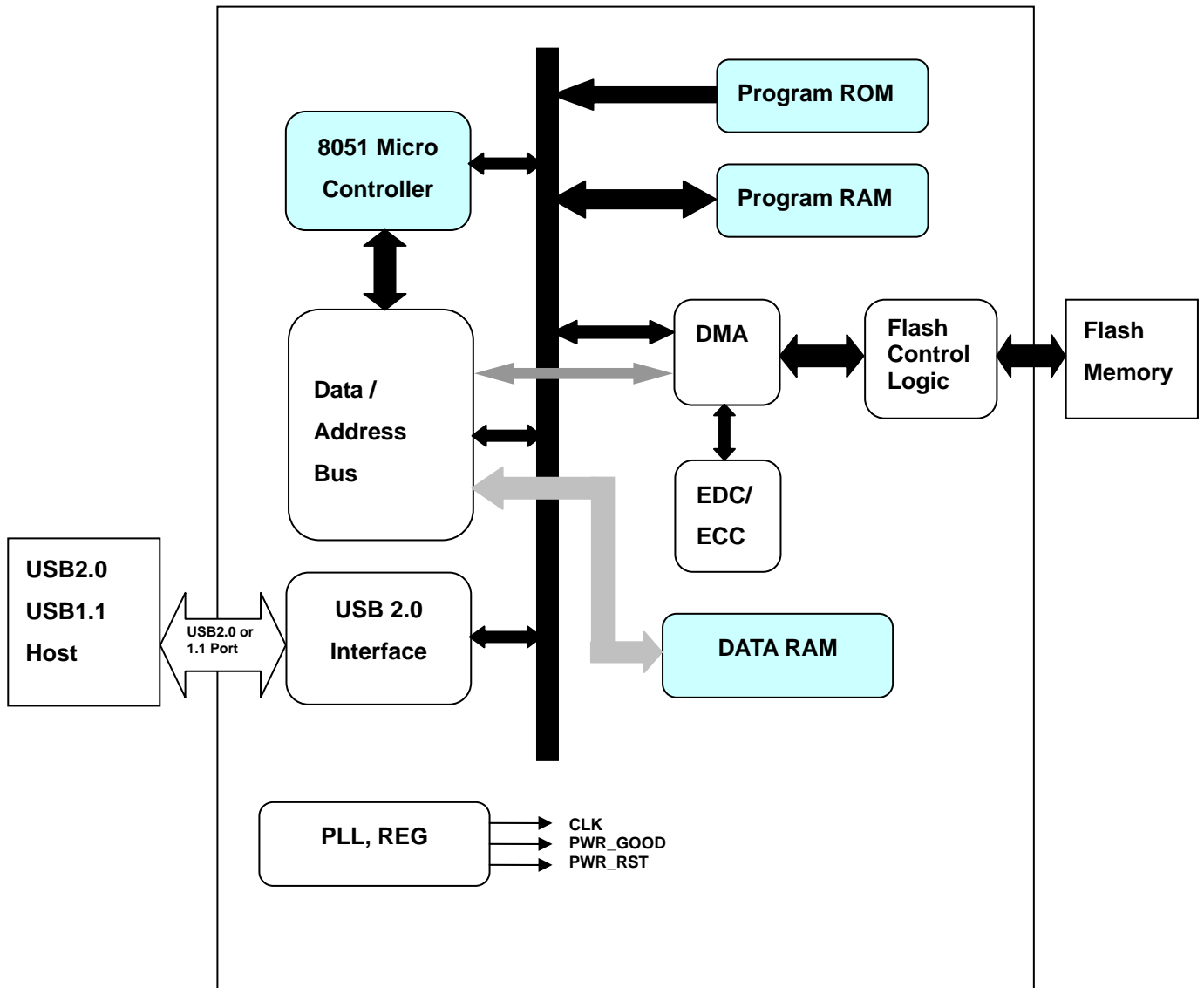
## 2. Main Features Overview

1. Ultra transfer rate: Read up to 33MB/sec
2. PQL's patented Intelligent Stick™ interface USB 2.0 compatible
3. Multimedia or Data Storage
4. Hot swappable, USB Plug & Play compatible
5. Low power consumption
6. Its small size making it easy to carry and store
7. Carrying caddy for easy storage in your wallet
8. Includes software USB Notebook – Personal File Manager software which is design for data security and easy management of your personal data featuring
9. Support Windows Vista Ready Boost

## 3. Hardware Specifications

<b>USB Interface</b>	High-speed USB 2.0 interface; backward compatible with USB 1.1	
<b>NAND Flash Interface</b>	Integrated ECC circuits for 4-bit error correction	
<b>OS Support</b>	No drive is required for Windows ME, 2000, XP, Vista or Mac OS 9.x	
<b>Environment</b>		
Temperature	Operating	0°C to 65°C
	Non-Operating	-20°C to 75°C
Vibration	Operating	0.2G
	Non-Operating	15G
Shock resistant	Operating	150G
	Non-Operating	1000G
<b>Configuration</b>		
Capacity		512MBytes ~ 2GBytes
<b>Reliability</b>		
MTBF(@25°C)		1,000,000 hours
<b>Power Requirement</b>		
Voltage		DC 3.3/5V ± 10%
<b>Power Consumption</b>		
Read		<100mA
Write		<100mA
Standby		<50mA
Un-configuration		<50mA
Suspend		<0.5mA

4. Block Diagram



5. Absolute Maximum Ratings

Symbol	Parameter	Min	Max	Unit
Tstorage	Storage Temperature	-20	75	°C
Ta	Ambient Operating Temperature	0	65	°C
Vcc3	3.3V Supply Voltage	-0.3	3.6	V
Vcc18	1.8V Supply Voltage	-0.3	2	V
Vin3.3	3.3V Buffer Input Voltage	-0.3	3.6	V
Vin3/5	3.3V/5V Buffer Input Voltage	-0.3	5	V
Vin1.8	1.8V Buffer Input Voltage	-0.3	2	V

## 6. DC Characteristics

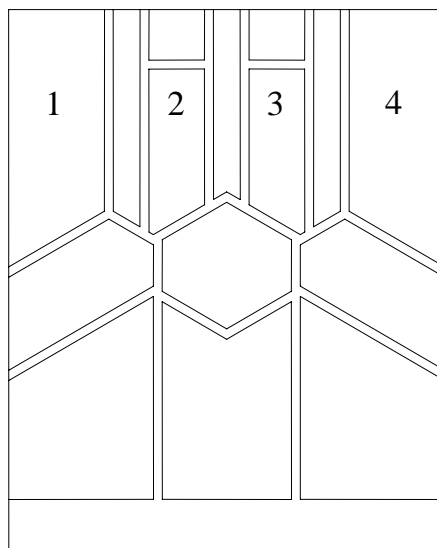
Symbol	Parameter	Min.	Max.	Unit	Notes
V <sub>IH_TTL</sub>	TTL Input High Voltage	2	V <sub>CC3</sub> +0.3	V	
V <sub>IL_TTL</sub>	TTL Input Low Voltage	-0.3	0.8	V	
V <sub>OH_TTL</sub>	TTL Output High Voltage	0.9 X V <sub>CC3</sub>		V	
V <sub>OL_TTL</sub>	TTL Output Low Voltage		0.45	V	
I <sub>OH_TTL</sub>	TTL Output High Current	-4		mA	
I <sub>OL_TTL</sub>	TTL Output Low Current		4	mA	
V <sub>IH_USB</sub>	USB Input High Voltage for Low-/full-speed	2.0		V	
V <sub>IL_USB</sub>	USB Input Low Voltage for Low-/full-speed		0.8	V	
V <sub>I_USB_DIFF</sub>	Differential Input Sensitivity for Low-/full-speed	TBD		V	
V <sub>I_USB_CM</sub>	Differential Common Mode Input Range for Low-/full-speed	0.8	2.5	V	
V <sub>I_USB_HSSQ</sub>	USB High-speed squelch Input detection threshold	0.10	0.15	V	
V <sub>I_USB_HSDSC</sub>	USB High-speed disconnect Input detection threshold	0.525	0.625	V	
V <sub>I_USB_HSCM</sub>	USB High-speed Signaling Common Mode Range	-0.05	0.5	V	
V <sub>OH_USB</sub>	USB Output High Voltage for Low-/full-speed	2.8	3.6	V	
V <sub>OL_USB</sub>	USB Output Low Voltage for Low-/full-speed	0	0.3	V	
V <sub>OH_USB_HS</sub>	USB Output High Voltage for High-speed	0.36	0.44	V	
V <sub>OL_USB_HS</sub>	USB Output Low Voltage for High-speed	-0.01	0.01	V	
I <sub>OH_USB</sub>	USB Output High Current for Low-/full-speed	-10		mA	
I <sub>OL_USB</sub>	USB Output Low Current for Low-/full-speed		10	mA	
I <sub>OH_USB_HS</sub>	USB Output High Current for High-speed	-40		mA	
I <sub>OL_USB_HS</sub>	USB Output Low Current for High-speed		40	mA	

## 7. Recommended Operating Conditions

Symbol	Parameter	Min.	Typical	Max.	Units
Vcc33	Power Supply Voltage	3.0	3.3	3.3	V
Vin	Input Voltage	0	Vcc	Vcc+0.3	V
Vcc25	Internal Power Support	2.25	2.5	2.75	v

## 8. Pin Assignments

Pin No.	Pin Name	Function
1	VCC	USB power input
2	USB D-	USB differential signal
3	USB D+	The pairs are used to transmit Data/Address/Command
4	VSS	Ground



## 9. Physical Specifications

### 9.1 Dimensions:

9.1.1 Height: 43mm

9.1.2 Width: 18mm

9.1.3 Depth: 2.8mm

9.1.4 Weight:  $2.7g \pm 0.5g$

### 9.2 Outline of top view

